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EXAMINER	
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ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/568,584	SENS ET AL.	
	Examiner	Art Unit	
	BOBBY RAMDHANIE	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *78-96* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *78-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application.
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/12/2009 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore the generating and passing radiation through an optical mask to generate masked radiation having a specific intensity distribution, the optical mask, the barcode mask, the telecentric measurement optics, the confocal color measurement system, the color scanner, the digital camera, the paint, the automobile paint, the periodic grating structure on the mask, and the detector for detecting at least one of transmission, reflection, and scattering of the masked radiation, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Arguments

4. Applicant's arguments with respect to Claims 39 & 41-77 have been considered but are moot in view of the new ground(s) of rejection. Applicant has cancelled Claims 39 & 41-77. Applicant has added new Claims 78-93.

5. Applicants argue that Fay et al does not disclose the alleged invention because Applicants state, "Fay at least fails to teach (i) generating and passing radiation through an optical mask to generate masked radiation having a specific intensity distribution, the specific intensity distribution having a known pattern function that depends on a position where the radiation has passed through the

mask; (ii) subjecting the sample to the masked radiation for a defined action time, to thereby cause a change in a physical property of the sample during the action time."

6. Applicant also states on the record that, "Fay uses a helium-neon laser that has a wavelength of 633 nm, and therefore has a very low photonic energy. Such laser does not cause any 'physical property change' that is measurable."

7. The Examiner respectfully disagrees.

8. Fay et al does disclose these limitations: (i) generating and passing radiation through an optical mask to generate masked radiation having a specific intensity distribution, the specific intensity distribution having a known pattern function that depends on a position where the radiation has passed through the mask (See Column 2 lines 36-52); (ii) subjecting the sample to the masked radiation for a defined action time, to thereby cause a change in a physical property of the sample during the action time (See Column 2 lines 36-52). "

9. Generating and passing radiation is inherent to the alignment system. Column 2 lines 36-52 discloses the process in which alignment and etching take place which are both dependent on each other to operate, cause a change in the physical property of the silicon wafer. Etching is interpreted as a method that changes the surface of the wafer and therefore changes the wafer itself. Physical properties that change from the etching process include the mass, volume, length, and distribution of the wafer. An action time is also inherent to both the alignment and wafer etching process because without a defined time, the wafer

would be completely consumed by the etching reagents and therefore no longer exist.

10. Applicants' new claim 78 recites: (ii) subjecting the sample to the masked radiation for a defined action time, to thereby cause a change in a physical property of the sample during the action time. This limitation does not restrict or eliminate/overcome a masked radiation of an alignment laser system which controls an etching process to cause the change in a physical property of the sample during the defined action time.

11. The Examiner would also like to bring to Applicants' attention that Applicants state on the record that, "Fay uses a helium-neon laser that has a wavelength of 633 nm, and there has a very low photonic energy. Such laser does not cause any 'physical property change' that is measurable."

12. Applicants' dependent Claim 79 states that the radiation includes light in a wavelength between 400nm to 800 nm. The wavelength of 633 nm falls into this claimed range – which means Applicants' have admitted on the record that the alleged invention is inoperable, to a certain extent.

Response to Amendment

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 78, 80, 81, 84-86, 88, 90 are rejected under 35 U.S.C. 102(b) as being anticipated by Jinbo et al (EP0908716).

15. Applicants' claims are toward a method.

16. Regarding Claims 78, 80, 81, 84-86, 88, & 90, Jinbo et al discloses the method for detecting change of a physically measurable property of a sample, comprising: A). Generating and passing radiation through an optical mask to generate masked radiation having a specific intensity distribution, the specific intensity distribution having a known pattern function that depends on a position where the radiation has passed through the mask (See Figure 1 Item 1; excimer laser & Item 2 homogenizer optical system - optical mask); B). Subjecting the sample to the masked radiation for a defined action time, to thereby cause a change in a physical property of the sample during the defined action time (See Abstract; the change in transparency is measured); C). Detecting at least one of transmission, reflection, and scattering of analysis radiation generated by at least one of transmission, reflection, and scattering of the masked radiation by the sample, as a function of position coordinates of the analysis radiation relative to the sample and a wavelength of the analysis radiation, so as to determine a response function that describes intensity of the at least one of transmitted, reflected, and scattered analysis radiation as a function of the position coordinates relative to the sample and the wavelength (See Abstract & Figure 1 & [0020]; and D). Determining a correlation of the specific intensity distribution of

the masked radiation with the response function by a correlation analysis, the correlation analysis producing a measure of a change of the physically measurable property of the sample due to the masked radiation during the defined action time (See Abstract).

17. Additional Disclosures Included: Claim 80: The specific intensity distribution produced a reference pattern on the sample during said step of (ii) subjecting (See Figure 1 & [0020]-[0024]); Claim 81: The specific intensity distribution is produced by the mask that has a wavelength-dependent transmission function (See [0020]-[0025]); Claim 84: The specific intensity distribution is a periodic intensity distribution with a spatial frequency (See [0020]-[0025]); Claim 85: The method as claimed in claim 78, wherein the at least one of the transmission, reflection, and scattering of analysis radiation is determined in at least one of Ultra Violet-Visible Spectroscopy and Near Infrared (See [0020]-[0024]); Claim 86: The at least one of the transmission, reflection, and scattering of analysis radiation by the sample is determined for a plurality of wavelength ranges, so as to determine a plurality of response functions for the plurality of wavelength ranges (See [0020]-[0025]); Claim 88: The method as claimed in claim 78, wherein the reflection of the analysis radiation is detected (see Figure 1, the energy monitor detect reflected radiation); and Claim 90: The method as claimed in claim 78, wherein the scattering of the analysis radiation is detected (See figure 1; the energy monitor detects the analysis radiation).

18. Claims 78-85, 88, & 92 are rejected under 35 U.S.C. 102(b) as being anticipated by Fay et al (US4704033).

19. Applicants' claims are toward a method.

20. Regarding Claims 78-85, 88, & 92, Fay et al discloses the method for detecting change of a physically measurable property of a sample, comprising: A). Generating and passing radiation through an optical mask to generate masked radiation having a specific intensity distribution, the specific intensity distribution having a known pattern function that depends on a position where the radiation has passed through the mask (See Figure 1 & See Summary of Invention - lasers and etching are based on a pattern function (See Column 2 lines 36-52, mask); B). Subjecting the sample to the masked radiation for a defined action time, to thereby cause a change in a physical property of the sample during the defined action time (See Column 2 lines 36-52 discloses the process in which alignment and etching take place which are both inter-related to cause a change in the physical property of the silicon wafer. Etching is interpreted as a method that changes the surface of the wafer and therefore changes the wafer itself. Physical properties that change from the etching process include the mass, volume, length, and distribution of the wafer. An action time is also inherent to both the alignment and wafer etching process because without a defined time, the wafer would be completely consumed by the etching reagents therefore no longer exist.); C). Detecting at least one of transmission, reflection, and scattering of analysis radiation generated by at least one of transmission, reflection, and scattering of the masked radiation by the sample, as

a function of position coordinates of the analysis radiation relative to the sample and a wavelength of the analysis radiation, so as to determine a response function that describes intensity of the at least one of transmitted, reflected, and scattered analysis radiation as a function of the position coordinates relative to the sample and the wavelength (See Column 1 lines 60-65; alignment system and etching); and D). Determining a correlation of the specific intensity distribution of the masked radiation with the response function by a correlation analysis, the correlation analysis producing a measure of a change of the physically measurable property of the sample due to the masked radiation during the defined action time See Column 2 lines 53-61; etching. Correlation analysis is inherent to the process to determine whether or not the etching has occurred and to what extent).

21. Additional Disclosures Include: Claim 79: The radiation includes light in a wavelength between 400 nm and 800 nm (See He-Ne laser); Claim 80: The intensity distribution is produced as a reference pattern on the sample during said step of (ii) subjecting (See Column 2 lines 54-58); Claim 81: The specific intensity distribution is produced by the mask that has a wavelength-dependent intensity distribution (See Column 2 lines 53-61; etching); Claim 82: Wherein exposure is carried out with artificial or natural sunlight (See Column 2 lines 54-61, alignment and etching is done with artificial light - laser); Claim 83: The method as claimed in claim 53, wherein the mask is a barcode mask (See Figure 1 See Mask – linear fresnel zone pattern may define a bar code); Claim 84: Wherein the intensity distribution is a periodic intensity distribution with a spatial

frequency (See Column 2 lines 54-61 see spatial contrast); Claim 85: Wherein the transmission, reflection, or scattering of analysis light in UV-VIS and/or NIR ranges is determined (See Column 4 lines 45 & 60-62); Claim 88: Wherein the reflection of the analysis light is detected (See Abstract; return beams); and Claim 92: Wherein the reflection or scattering of the analysis light by the sample as a function of the position coordinates is detected using a color scanner (See Figure 1 Item 14, the light is detected by the scanner for alignment. It must be a color scanner because the lasers are of a visible light).

22. Claims 78-82, 84-86, 88, 90, & 94 are rejected under 35 U.S.C. 102(b) as being anticipated by Gonze (GB1315318).

23. Applicants' claims are toward a method.

24. Regarding Claims 78-82, 84-86, 88, 90, & 94, Gonze discloses the method for detecting change of a physically measurable property of a sample, comprising: (i) Generating and passing radiation through an optical mask to generate masked radiation having a specific intensity distribution, the specific intensity distribution having a known pattern function that depends on a position where the radiation has passed through the mask (See Page 1 Right Column lines 49-55, lines 80-90, Page 2 lines 14-27 & Page 3 lines 95-98); (ii) subjecting the sample to the masked radiation for a defined action time, to thereby cause a change in a physical property of the sample during the defined action time (See Page 1 Right Column lines 80-90, & See Title); (iii) detecting at least one of transmission, reflection, and scattering of analysis radiation generated by at least

one of transmission, reflection, and scattering of the masked radiation by the sample, as a function of position coordinates of the analysis radiation relative to the sample and a wavelength of the analysis radiation, so as to determine a response function that describes intensity of the at least one of transmitted, reflected, and scattered analysis radiation as a function of the position coordinates relative to the sample and the wavelength (See Page 2 Left Column line 62 to Right Column line 101); and (iv) determining a correlation of the specific intensity distribution of the masked radiation with the response function by a correlation analysis, the correlation analysis producing a measure of a change of the physically measurable property of the sample due to the masked radiation during the defined action time (See Page 3 lines 95-98 & line130 to Page 4 Left Column line 7 & Page 4 Right Column lines 84-87).

25. Additional Disclosures Included: Claim 79: The radiation includes light in a wavelength between 400nm and 800nm (See Page 2 Left Column lines 54-61 & Right Column lines 97-101 & Page 4 Right Column lines 62-67); Claim 80: The specific intensity distribution produced a reference pattern on the sample during said step of (ii) subjecting (See Page 3 lines 95-98 & line130 to Page 4 Left Column line 7 & Page 4 Right Column lines 84-87); Claim 81: The specific intensity distribution is produced by the mask that has a wavelength-dependent transmission function (See Rejection to Claim 78); Claim 82: The radiation is generated by artificial or natural sunlight (See Page 1 Right Column lines 49-55 & See Page 2 Left Column lines 16-18); Claim 84: The specific intensity distribution is a periodic intensity distribution with a spatial frequency (See

Rejection to Claim 82); Claim 85: The method At least one of the transmission, reflection, and scattering of analysis radiation is determined in at least one of Ultra Violet-Visible Spectroscopy and Near Infrared (See Rejection to Claim 82); Claim 86: At least one of the transmission, reflection, and scattering of analysis radiation by the sample is determined for a plurality of wavelength ranges, so as to determine a plurality of response functions for the plurality of wavelength ranges (See Page 4 Left Column lines 4-6); Claim 88: The reflection of the analysis radiation is detected (See Page 4 Right Column lines 76-95); Claim 90: The scattering of the analysis radiation is detected (See Page 4 Right Column lines 76-95); and Claim 94: The method as claimed in claim 78, wherein the sample includes a substrate and that is covered with paint, and the masked radiation acts on the paint (See Page 3 Right Column lines 117-124).

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

27. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

28. Determining the scope and contents of the prior art.
29. Ascertaining the differences between the prior art and the claims at issue.

30. Resolving the level of ordinary skill in the pertinent art.
31. Considering objective evidence present in the application indicating obviousness or nonobviousness.

32. Claims 83 & 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonze in view of Mossberg et al (US20040173680).

33. Applicants claim is toward a method.

34. Regarding Claim 83, Gonze discloses the method as claimed in claim 78, except wherein the mask is a barcode mask or that the there is a periodic grating structure on the mask (Claim 96). Mossberg et al discloses an optical mask which is a barcode mask/ periodic grating structure on the mask (Claim 96) that may be employed for encoding information according to the given spectral coding scheme (See [0026]-[0028]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical mask of Gonze to be a barcode mask/periodic grating on the mask to selectively expose the substrates to specific wavelengths and omit other wavelengths of the artificial sunlight.

35. Claims 87, 89, 91, 92, 93, & 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonze in view of Bhardwaj et al (US5580172), Matthews et al (US6714831), and McKnight et al (1997).

36. Applicants' claims are toward a method.

37. Regarding Claims 87, 89, 91, 92, 93, & 95, Gonze discloses the method as claimed in Claims 78, 88, 90, & 94 respectively, except wherein the response

function is respectively determined for red, green and blue light by RGB analysis (Claim 87), the method as claimed in claim 88, further comprising the step of: using telecentric measurement optics for detecting the reflection of the analysis radiation (Claim 89), the method as claimed in claim 90, further comprising the step of: using a confocal color measurement system for detecting the scattering of the analysis radiation (Claim 91), at least one of the reflection and scattering of the analysis radiation by the sample as a function of the position coordinates relative to the sample is detected using a color scanner (Claim 92), at least one of the reflection and scattering of the analysis radiation by the sample as a function of the position coordinates relative to the sample is detected using a digital camera (Claim 93), the paint is an automobile paint (Claim 95).

38. Bhardwaj et al discloses the method of analysis of radiation wherein the response function is respectively determined for red, green and blue light by RGB analysis (See Figures 5-7) and at least one of the reflection and scattering of the analysis radiation by the sample as a function of the position coordinates relative to the sample is detected using a digital camera (See Figure 2), Matthews et al discloses the method comprising the step of: using telecentric measurement optics for detecting the reflection of the analysis radiation (See Figures 2 & 3) and the paint is an automobile paint (See Figures 2 & 3) and at least one of the reflection and scattering of the analysis radiation by the sample as a function of the position coordinates relative to the sample is detected using a color scanner (See Column 2 lines 54-67), McKnight et al discloses the method comprising the step of: using a confocal color measurement system for detecting

the scattering of the analysis radiation (See Page 495 Left Column 1st Paragraph).

39. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gonze with the additional method steps as disclosed in Bhardwaj et al, Matthews et al, and McKnight et al, in order to study and improve the light fastness of automobile paints due to exposure to artificial and/or natural sunlight.

Telephonic Inquiries

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY RAMDHANIE whose telephone number is (571)270-3240. The examiner can normally be reached on Mon-Fri 8-5 (Alt Fri off).

41. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

42. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. R./

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797